Pathways Enriched for Genes Significantly Expressed in Response to Arsenic

Category	Differentially Expressed	Size	P value	Significant
KEGG PATHWAY				
Cell Cycle Reference Pathway	8	87	0.9072	FALSE
Galcatose Metabolism	5	15	0.0391	FALSE
Glutathione Metabolism	6	11	0.0014	TRUE
MAPK Signalling Pathway	7	55	0.609	FALSE
Methionine Metabolism	8	11	1.07E-05	TRUE
Proteasome	9	30	0.0127	FALSE
Purine Metabolism	14	139	0.8991	FALSE
Pyrmidine metabolism	8	80	0.8515	FALSE
Sulfur Metabolism	7	7	7.15E-07	TRUE
Serine, Threonine and Glycine Metabolism	8	25	0.0125	FALSE
Citrate Cycle	4	22	0.3345	FALSE
Starch and Sucrose	9	31	0.0159	FALSE
Pyruvate	4	25	0.4292	FALSE
Reductive Carboxylate	5	16	0.0508	FALSE
Second Messenger Signaling	3	19	0.472	FALSE
Valine, Leucine, Isoleucine	2	13	0.5313	FALSE
Circadian rhythm	2	19	0.7398	FALSE
Porphyrin and chlorophyll metabolism	7	74	0.8782	FALSE
Selenoamino acid metabolism	10	12	8.36E-08	TRUE
Ubiquitin mediated proteolysis	2	29	0.9133	FALSE
Cysteine Metabolism	2	4	0.088	FALSE
Fructose and Mannose	6	15	0.0093	FALSE
Carbon Fixation	3	15	0.3207	FALSE
Alanine and Aspartate	2	24	0.8477	FALSE
Glutamate	3	19	0.472	FALSE
Methane	2	4	0.088	FALSE
SIMPLIFIED ONTOLOGY (Biological Process)				
Biological Process	72	436	0.0244	FALSE
Cell Communcation	72	270	<1.00E-008	TRUE
Cell Growth and Maintenance	47	268	0.0231	FALSE
Cell Surface Linked Signal Transduction	14	91	0.3197	FALSE
Developmental Processes	5	32	0.4233	FALSE
Heat Shock response	14	22	5.40E-08	TRUE
Intracelluar Signalling	9	47	0.1635	FALSE
Serine Threonine kinase Signalling	5	38	0.5815	FALSE
Signal Transduction	26	172	0.2656	FALSE
ATPase	3	78	0.9988	FALSE
Cyclin	4	29	0.5499	FALSE

Table 1. **Transcript profiling reveals arsenic affects glutathione, methionine, sulfur, selenoaminoacid metabolism, cell communication and heat shock response.** Genes were categorized by Kegg pathway and Simplified Gene Ontology. In total, 894 genes out of 6240 had a significant alteration in expression. Along with the size of each functional category, a statistical measure for the significance of the enrichment was calculated by using a hypergeometric test. The level of significance for this test (i.e. True, False) was determined using the Bonferroni correction, where the α value is set at 0.05 and 27 and 11 tests were done for Kegg pathway and Simplified Ontology, respectively.